

TOWARDS A SUCCESSFUL GLOBAL PAYMENT SYSTEM IN MOBILE COMMERCE

Agnieszka Zmijewska, Elaine Lawrence, Robert Steele
University of Technology, Sydney
PO Box 123
Broadway NSW 2007
Australia

ABSTRACT

In mobile commerce, a global and interoperable mobile payment solution is still missing. Simpay, an initiative by the four largest European mobile operators, aims to become just that. This study measures Simpay against known success factors in m-payments to discover whether it is likely to succeed when it is released next year. This paper also points out what needs to be improved or changed so that Simpay can be accepted by consumers. The focus is on the user's perception of the system since the user is seen as the key to acceptance of any new solution. Simpay's features from the user's point of view are analysed. Those features are then discussed in terms of their positive or negative influence on the likeliness of Simpay's success. The system's strengths and weaknesses are thus identified. Some challenges that need to be overcome before the new system becomes successful are also presented. Such an analysis can be used as an example on how to measure strengths and weaknesses of any other mobile payment system.

KEYWORDS

mobile payments, Simpay, user-centric, success factors, interoperability

1. INTRODUCTION

Mobile commerce refers to electronic commerce over a mobile device. M-commerce is still in an early stage of development. Widely adopted mobile payment systems are still missing. New solutions keep appearing but NTT DoCoMo's i-mode remains the only truly widespread m-payment solution. In April 2004, it reached an enormous consumer base of 41 million in Japan (NTT DoCoMo, n.d.). Outside Japan though, numerous proprietary systems have come and gone, never reaching a considerable customer base.

A new m-payment system, Simpay, is to be launched in early 2005. It is the first system that aims to achieve true interoperability, first in Europe, and eventually around the world. It is designed specifically to work across all operator networks and country boundaries. If successful, it could become the first global m-payment solution. This paper will look closely at Simpay to see if it can live up to expectations. It will answer the question whether the predictions about it are not too optimistic, as was the case with most m-payment initiatives. Strengths and weaknesses of Simpay will be analysed. The study will indicate how the new system can be improved, and what challenges have to be overcome for it to succeed.

By using Simpay as an example this paper will illustrate how key success factors identified by other researchers in earlier studies can be applied in practice. The conclusions may become useful not only to improve this particular system, but also to evaluate chances of success, and if necessary to improve, any new m-payment solution to come.

2. BACKGROUND

Despite its slow start, many believe that m-commerce still has a future. There have been numerous attempts to find out how to use its full potential. Various initiatives and consortia have been created, with the aim of

devising the best practices, guidelines, standards, and specifications to help m-commerce take off. Mobey Forum, MeT (Mobile electronic Transactions), Mobile Payment Forum, and PayCircle have released technology assessments, requirements documents, recommended specifications, and the like.

Many of the works are still in progress, or being reviewed. None of the guidelines or specifications has led to development of a successful solution. Theory has not been put into practice yet. Guidelines and specifications are all that is offered. This could change however with Mobile Payment Services Association, founded in 2003 by four mobile operator companies: Vodafone, Telefonica Moviles, T-Mobile, and Orange. What makes it different from other initiatives is that soon after its creation, the association proposed a new brand, Simpay, and promised a new working solution early in 2005. The design and technical specifications are already there. The beta version of a new payment solution should become available in October 2004.

Simpay is being created by some of the largest mobile operators. The founding members represent approximately 65% of the European mobile phone market (Corporate Finance, 2004). They have 280 million subscribers in the countries where they operate. This could be a chance for mobile payments to finally gain its momentum outside Japan. The importance of the project is evident. Equally important however is research into the new standard so that the chance is not wasted.

3. METHODOLOGY – USER CENTRIC VIEW OF A SYSTEM

This paper aims to answer the questions about Simpay's strengths and weaknesses by using both the information released about Simpay to date on the official website, as well as current findings about success factors in mobile payments. The authors' previous research identified the need to look at m-commerce payment systems from the user's perspective. The importance of the user in the process of acceptance of a new system was emphasized. A classifying model was proposed to decompose m-payment systems as seen by the consumer (Zmijewska et al., 2004). This paper uses the model to analyse Simpay from the user's point of view because ultimately it is the user who will determine its failure or success. The specific solutions proposed by Simpay are then measured against known success factors in m-payments. Simpay's strengths that are likely to contribute to its wide adoption are thus identified, along with the weaknesses. Some challenges stemming from Simpay's solutions are also presented.

Section 4 categorizes Simpay using the user-centric model, while Section 5 discusses how each of the solutions chosen by Simpay could influence its success or the lack of it. Section 6 summarizes which criteria form Simpay's strengths as opposed to its weaknesses. It also identifies new challenges stemming from some of Simpay's solutions, which are then discussed in Section 7. Conclusions are presented in Section 8.

4. SIMPAY FROM THE USER'S POINT OF VIEW

The user-centric classifying model developed by the authors can be used to analyse the user's view of Simpay. Table 1 presents the features that are likely to matter in the user acceptance process.

Table 1. Simpay in user-centric classifying model

Category	Criteria	Simpay
Change of phone requirement	None	
	Any WAP-enabled	
	New handset	
Registration requirement	None	Not known yet
	Online	
	By phone	
	In person	
Available phone operating company to which the user has to subscribe	One	
	Several	
	All national operators	
	Any	

Available applications	POS	
	Virtual POS	
	Mobile merchant	
	Parking	
	Ticketing	
	Digital content	
	Vending machine	
	Utility bills	
	Pre-paid top-up	
	Person to person	
Communication of consumer's number to start transaction	N/A – initiated from the phone	
	Via internet	
	Phone call	
	Scan device	
	Tell merchant	
Communication of transaction details to user	SMS	
	Voice call	
	Displayed on screen	
Acceptance of transaction by customer	Click to confirm	
	PIN	
	Session code	
Confirmation to customer	None	
	Paper receipt	
	SMS	
	Displayed on screen	
Payment occurrence	From pre-paid account	
	From bank account	
	On phone bill	
	On credit card statement	
Brand visible to consumer	Mobile operator	
	Financial institution	
	New brand	
Value of payment	Micropayments	
	Macropayments	
Registration fee (yearly)	None	
	<= \$15	
	>\$15	
Transaction cost for consumer	None	Not known yet
	Cost of phone call	
	Cost of one SMS	
	Cost of two SMS's	
	Separate fee	
Time of transaction	<average cash transaction (10s)	Not known yet
	<average credit transaction (30s)	
	30 sec – 1 min	
	over 1 minute	

5. SIMPAY'S SOLUTIONS AND THEIR LIKELY INFLUENCE ON CONSUMER'S ACCEPTANCE OF THE SYSTEM

Table 1 presented Simpay and its features that are likely to matter in the user's acceptance process, based on the information available on the official website. How do solutions chosen by Simpay compare to what is known about m-payment success factors? Are Simpay's solutions likely to be successful?

5.1 Change of phone requirement

Simpay does not require any special upgrades to the user's mobile phone. Some other systems require a new phone, with a dual slot for example. It could either slow down the adoption process, if the user had to cover

the device cost, or raise a complicated issue of who should subsidize the new device. Not having to purchase a new mobile phone was rated as 'very important' or 'important' by 83% of respondents in Pousttchi's (2003) study on conditions for acceptance of m-payment procedures. The solution chosen by Simpay is likely to increase the likelihood of its success.

5.2 Registration requirement

Simpay has not yet released information about the registration process required of the user. Other systems let customers register online, on the phone, or in person. The solution chosen by Simpay may have significant influence on the user's adoption of the system. The interviewees taking part in Dahlberg's (2003) study perceived m-payment services as difficult if they required registration. If the registration is required by Simpay, it should be as effortless as possible, preferably online.

5.3 Available phone company to which the user has to subscribe

Many present systems are confined to one network. Customers have to be subscribers of one particular operator to access the system. Krueger (2001) realises that such a large number of non-interoperable schemes may restrict the adoption of m-payments, and hence the development of m-commerce. Such a view is supported by a Lucent director who maintains that the payment, transactions and authorization components of mobile commerce are being held back because of the lack of standards and many different systems that do not necessarily work together (Costello, 2002). According to Buhan et al. (2002), the good solutions will be able to interact with other solutions to create a global payment network. Krueger (2001b) also predicts the pressure from users for co-operative solutions, as well as a demand for 'payment roaming'. Such payment roaming could include both the user wanting to make payments while travelling outside of their network coverage, or to make payments to customers of other networks. Moreover, it may seem that too many proprietary solutions only confuse customers. Because of proprietary approaches, there is no one coherent framework for the future of m-commerce, and this may lead to market fragmentation and delay its growth (Ding et al., 2002).

At its inception, Simpay announced that their objective was achieving interoperability and creating the first truly open m-payment system. The four competitors have realised the need to collaborate on the matter. This interoperability could prove Simpay's biggest strength.

Just by working together, the founding members have gained the 280 million potential users in the countries where they operate. All other mobile phone operators are invited to join the initiative. According to the Simpay website, the company 3, Debitel, KPN Mobile Group, O2, TMN, Elisa (previously Radiolinja), Mobilkom, Optimus, SFR and TeliaSonera have expressed interest in becoming new members. This would mean that the system would become interoperable across all these networks.

Because it has taken so long for any interoperable solution to appear, many proprietary systems have already been deployed by some operators. Vodafone, which is also a part of Simpay, has in the meantime introduced its own solution, m-pay. Simpay will not disallow the use of other systems, so they can coexist. This should alleviate the concerns some operators may have about the future of their current solutions.

5.4 Available applications

The new system will be initially only used to pay for digital content. Consumers will be able to buy ring tones, java games, icons, logos, mp3, and video clips. Other existing systems have focused on numerous applications, including Point of Sale (POS) payments, virtual POS, vending machines, topping up pre-paid mobile accounts, or person-to-person payments.

Digital content is particularly suited to a mobile phone. When buying hard goods, customers would often like to view the pictures of products to compare their features and colours, and small screens of mobile devices are certainly not ideal for this. This is not an obstacle though while buying a song, news piece, or even a theatre ticket. It is also perfect for sudden impulse purchases since a mobile phone is always with us. The belief expressed by Simpay on their official website is that the mobile commerce market will eventually evolve from digital content to take in physical goods, and so the system is expected to grow with the market. For now Simpay members believe that the biggest potential lies in digital content. This approach is likely to

be successful because it gives consumers time to accept the low-value mobile payments before they are ready to trust credit or debit card solutions for more expensive goods.

5.5 Communication of consumer's number to start transaction, and of transaction details back to user

The payment procedure of Simpay seems easy to learn and free of effort. The user does not have to communicate their phone number, as is the case with some other systems where the device must be scanned, the number communicated verbally, or sent by SMS to the merchant. Transaction details are then displayed on the screen, which again requires less effort than answering the phone or SMS, which is how some other systems work.

5.6 Acceptance of transaction by customer

The Simpay demo indicates that the user only needs one click to accept the transaction. In other systems, this is usually done by using a PIN code, which was selected during the registration process. Some solutions also generate session codes sent to the user along with the transaction details. The customer has to provide this code along with their PIN. If Simpay used such a model, perceived security of the system could be increased.

5.7 Confirmation to customer

As the Simpay demo indicates, there is no receipt presented to the user. Mobile phones seem to have one weakness that cash or credit cards do not have: their battery can die. If this happens in the middle of a transaction, how does the customer know whether it has been processed? How can they resume the transaction and download the content? How do they know they will not be charged twice? Even if those issues are being addressed by Simpay at this stage, the solution has not been communicated to the consumer. If users are not convinced that these problems can be solved, they may be less inclined to try a new system.

5.8 Payment occurrence

Existing systems make payments occur in a variety of ways. Payment can occur from a debit card account, pre-paid account, or can be added to a credit card statement. Transactions conducted using Simpay will be added to existing mobile phone bills.

This model has already been successful with i-mode in Japan. It seems to be the most logical solution for mobile operators. They already have extensive experience with billing, and have been doing it successfully for years. The billing systems are sophisticated enough to handle different tariffs, promotions, and even locations. Mobile operators seem to have enough expertise to be able to bill for mobile purchases.

5.9 Brand visible to consumer

Simpay is a new brand developed to distinguish it from its founding members. When making a payment, a user will be presented with the Simpay logo. The lack of a familiar brand however may become an obstacle. Dahlberg's (2003) interviews with potential users indicated that they would be willing to use an m-payment solution if they could see a trusted familiar brand. Furthermore, users seemed to be more willing to use a new system knowing that their trusted financial institutions are part of the scheme. It may be harder for mobile operators to gain similar trust, especially when Simpay moves to higher value payments, as it plans to do. This could affect perceived security of the system.

5.10 Value of payment

Simpay's initial focus will be solely on micro-payments (under €10). A micropayment seems to be particularly suited to mobile payments. There seems to be less risk for customers when payments are low,

and so a new system may gain trust and acceptance faster. What is more, the lack of receipts may be less important than with higher value transactions.

5.11 Registration fee (yearly) and transaction cost for consumer

Simpay leaves it to operators to set the fees for using the system so it is not known at this stage what the transaction costs will be. There seems to be no yearly fee imposed. In Pousttchi's (2003) study, only 8.5% of the respondents would accept more than €5 as a yearly fee. Only about one third of respondents in the survey accepted the use with a transaction fee of €0.10. These facts should be considered not only by Simpay but by providers of any new payment systems.

5.12 Time of transaction

The average credit card transaction takes less than 30 seconds, while a cash transaction on average takes less than 10 seconds (Leung & Lieber, 2002). It seems important to compare new m-payment systems to cash and credit card transactions, if they are to become a new way to pay. Simpay has not yet released information on how long their transactions will take. If the user is to accept the system as a new payment alternative, it has to be at least as fast as, or preferably faster, than cash and credit card transactions.

6. SUMMARY OF SIMPAY'S SOLUTIONS AND THEIR LIKELY INFLUENCE ON THE SYSTEM'S SUCCESS OR FAILURE

The features chosen by Simpay and their predicted outcome are summarized in Table 2. Some of Simpay's solutions, even though likely to benefit the new system, also lead to new challenges.

Table 2. Summary of Simpay's solutions and their likely outcome

	Solution	Likely to contribute to Simpay's success?	Challenges stemming from chosen solution
Change of phone requirement	Any phone	Yes	
Registration requirement	?	?	
Available phone operating company to which the user has to subscribe	Four biggest operators, all others invited to join	Yes	Roaming and revenue distribution
Available applications	Digital content	Yes	Lack of content
Communication of consumer's number to start transaction	Not required	Yes	
Communication of transaction details to user	Displayed on the screen	Yes	
Acceptance of transaction by user	Click to confirm	No	
Confirmation to customer	None	No	
Payment occurrence	On the phone bill or from pre-paid account	Yes	Relationship with financial institutions
Brand visible to consumer	New brand	No	
Value of payment	Micropayments	Yes	
Registration fee (yearly)	None	Yes	
Transaction cost for consumer	?	?	
Time of transaction	?	?	

7. CHALLENGES STEMMING FROM SIMPAY'S SOLUTIONS

7.1 Roaming and revenue distribution

One challenge that would have to be solved before Simpay can become a truly successful system is the issue of roaming and revenue distribution. There are various scenarios how payments can take place across different networks and even countries. Without solving the issue of revenue distribution in such situations, this will never be a truly interoperable system, hence the importance of further research in this area.

7.2 Lack of content

Many existing solutions seem to focus too much on payment as their objective. Payments cannot exist without something for which the user can pay. Even the most mature payment solution will not succeed if there is no need to use it. Even if Simpay meets all the conditions required of a successful mobile payment system, it will make no sense if there is nothing to pay for.

The question arises then if Simpay does have enough content to attract customers to this new system. The Vodafone Live! portal is one place where customers will be able to purchase tones, icons, and the like. The Simpay founding members should make sure there is plenty more content available when the system is launched. The user first needs to realize the need to buy this content, and the new payment system should be there to enable it. Simpay should focus its efforts on developing its own content, or acquiring content and service providers now, because later it may be too late to bring disappointed customers back.

7.3. Relationship with financial institutions

Simpay only allows mobile operators to join the initiative. The billing system completely excludes banks from the payment process. Simpay's objectives are to benefit mobile operators only. If the interests of other parties are not taken into account, practices are not likely to be accepted by those parties.

As long as the payments remain very low, the lack of support from financial institutions may not affect Simpay much. Banks may not be interested in dealing with under €10 transactions. When Simpay moves to payments for more expensive goods such as theatre tickets, the issue can become more complex. It is very likely that banks will not like the fact they are put outside of the initiative for so long. Simpay should work on improving its relationship with banks from the very beginning.

The good relationship with financial institutions will be crucial when Simpay moves to credit card payments in the later stages. The problem does not seem to be solved as yet since Riley (2003) quotes Simpay's CEO Tim Jones saying that they are "getting some hostility from banks".

Setting up business/bank interrelationships may not be an easy task since it has already been a source of problems in the past. When another m-payment provider, Paybox, pulled out of its customer services in most countries, the main reason seemed to be the lack of cooperation between various parties, such as banks and mobile operators (Bland, 2003).

8. CONCLUSIONS

Some of the mobile payment success factors presented by the example of Simpay include the possibility of using the existing mobile device, as well as interoperability of the system, initially between the four members, and possibly globally in the future. Digital content seems to be well suited to m-payments, too. Charging for transactions on a mobile phone bill is likely to prove successful as well. Initial focus on micropayments is another Simpay strength.

Some Simpay's solutions however may slow down its adoption process, and they should be avoided in any new m-payment system. Lack of transaction confirmation is likely to worry consumers. The perceived security of the new system seems quite low, too. Similarly, lack of familiar and trusted brand may hinder the adoption of Simpay.

Not yet released solutions include registration requirement, costs, and time of transaction. If the effort required to register for Simpay, as well as the cost and time of each transaction are too high, they are likely to have a negative effect on the user's adoption of the new system.

Further research would be required to address some new challenges that have been identified, such as availability of suitable digital content, revenue distribution, and relationship with financial institutions.

This analysis can be used as an example of measuring success factors of any new payment system.

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